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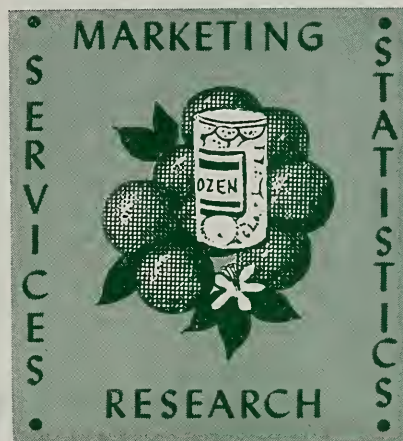
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MARCH 1957

AGRICULTURAL MARKETING

9/3



Trends in Marketing Oranges

Fabrics and Fibers
for Passenger Cars

Prolonging Storage Life
by Atomic Radiation



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March 1957

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Cover

The modern new evaporator, shown on our cover page, is capable of producing thousands of gallons of orange concentrate daily. It is a key step in the concentrate process. On page 8, Robert Frye, agricultural economist, Market Development Branch of AMS, discusses current trends in the market for oranges, including frozen concentrated orange juice and orange crystals.

Photo identification

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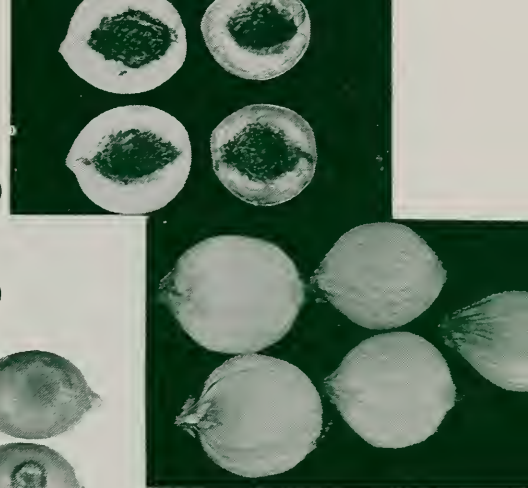
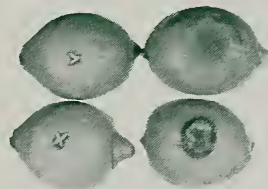
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Editor (acting) Milton Hoffman

INCREASING MARKET LIFE BY ATOMIC RADIATION

By Harold T. Cook



WILL it be possible in the future to prolong storage and market life of fresh fruits and vegetables by atomic radiation treatment?

Such a possibility would fulfill the wildest dreams of growers, shippers, packers, retailers, and many others in the agricultural marketing community—including the consumer.

Drs. Louis Beraha and G. B. Ramsey, research scientists of the Agricultural Marketing Service, cannot, as yet, promise the fulfillment of this dream. But, recent tests by them indicate that gamma radiation can materially aid in extending the market life of certain fresh fruits and vegetables.

Through the cooperation of the Argonne National Laboratory, and under contract with the Army Quartermaster Food and Container Institute, the AMS researchers tested the effects of gamma radiation on the control of certain postharvest diseases of fruits and vegetables.

The source of the irradiation used at the Argonne Laboratory for treating fruits and vegetables came from the Materials Testing Reactor at Arco, Idaho, in the form of spent fuel elements.

The amount of radiation received by the experimental fruits and vegetables depends on two factors: exposure time, and how close the fruit or vegetable is to the source of gamma rays.

Drs. Beraha and Ramsey experimented with strawberries, grapes, navel oranges, lemons, peaches, and onions. They were concerned with stopping or delaying the development of such common diseases as gray mold of strawberries and grapes, *Rhizopus* rot of strawberries, brown rot on peaches, blue mold of apples and citrus fruits, and others.

Results of detailed tests showed that, almost without exception, dosages of radiation required to completely destroy the organisms also had bad effects on the fruit or vegetable itself.

For each fruit, an attempt was made to reach a compromise between the minimum dosage required to completely kill the decay-causing organism and the maximum dosage that would have no detrimental effect on the quality of the product.

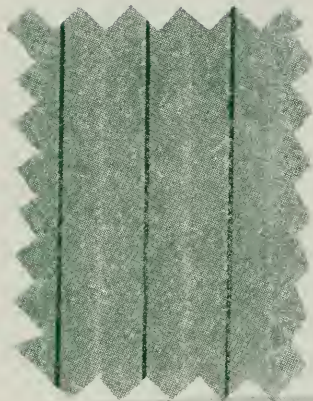
Radiation of strawberries demonstrated that both gray mold and *Rhizopus* rot can be retarded significantly. But a delicate balance exists between those dosages of gamma rays causing visible injury to the fruit and those required to retard the development of the disease. Both of the fungi involved continue to grow slowly and induce rot under normal refrigeration conditions.

Combining gamma radiation and refrigeration, however, more than doubles the storage life of fresh strawberries without visible adverse effects.

Tests on Jonathan apples showed that proper dosages of gamma radiation can reduce the development of blue mold in stored apples without affecting internal core breakdown, color change in skin tissue, or textural changes in the flesh of the apples.

While experiments showed it was possible to greatly reduce or retard the growth of blue contact mold of oranges and lemons, radiation may alter these citrus fruits in a manner not yet understood. In this case, radiation results in the development of a weakness for infection by a black rot which is caused by a normally weak parasite that harbors itself within the "button" area of the fruit.

The National Research Council of the National Academy of Sciences, in its "Biological Effects of Atomic Radiation," reports that "experiments to date indicate that irradiated foods do not become radioactive, and they will be suitable and safe for consumption by man." The Council concludes with this comment: "As an industrial process, radiation treatment is especially attractive because it can (and should) be carried out after packaging."



FABRICS and FIBERS for PASSENGER CARS

By Milton Jacobs

THE last decade, and more particularly the last five years, has seen a considerable change in the use of textile materials in automobile interiors. Not only have the competitive positions of the various fibers and fabrics changed, but also how they are used.

The overall position of cotton, for example, has declined somewhat from its 1950 level. But the use of better grade cotton has increased. Cotton is still number one as a trim material—for upholstery, sidewalls, and headlinings.

Wool, which formerly was used extensively for upholstery and sidewalls, has lost its place as a leading fiber for car interiors. Vinyl is the newcomer that now ranks second in trim materials.

In 1950 the Market Development Branch of Agricultural Marketing Service made an extensive survey of fabrics and fibers for passenger cars. In 1955, it repeated the study. Not only were comparisons made, but future trends were appraised.

Researchers primarily were interested in finding out what the key automotive executives considered the characteristics of an “ideal” fabric for each part of the car. They wanted to know why these people preferred certain fabrics over others—taking into consideration style, cost, and serviceability.

The position of cotton, from the agricultural viewpoint, is of utmost importance. The very fact that it has held its own and is expected to maintain its position in the future is encouraging to the industry.

Overall statistics for the 2 survey years show that 55 percent of all upholstery and padding materials used in 1955 was cotton as compared with 62 percent used in 1950.

However, when waste cotton in seat padding is excluded, cotton accounted for considerably more in 1955 than in 1950—43 percent compared to 38 percent. So, while the total amount of cotton used in car interiors has decreased, the use of non-waste cotton actually increased. AMS researchers feel these figures will show some increase in the immediate future.

The cotton industry, through research such as this, has been able to find out what the manufacturers want and expect in fabrics for automobile interiors. Executives from the five largest automotive companies made valuable suggestions on how the cotton industry could even better the present position of its product.

They suggested that soil resistance, cleanability, wearing qualities and appearance of cotton for upholstery and sidewalls be improved. Where cotton is used for headlining (ceilings of car interiors), greater flexibility in the installation of the fabric is needed. It should also be more soil resistant as well as easier to clean.

Regarding the use of cotton in convertible tops, executives want good color permanency, color range, and smart designs and colors on the interior side of cotton tops. Again, cleanability and durability rated consideration.

Executives doubt that cotton can successfully compare with foam rubber in seat padding or with the materials now being used in thermal and sound insulation.

Even so, its use in other parts of the automobile's interior still gives it top priority. Cotton is used in combination with many of the other fibers. In nylon blends, which today are extremely popular for upholstery, cotton figures as the principal filler. It also

is used for blending with other synthetics and as backing for vinyls.

The trend toward extensive use of cotton-backed vinyls for sidewalls will give cotton a further boost. However, the vinyls are expected to make inroads in the headlinings of automobiles—an area in which cotton has been used exclusively.

During 1955, cotton poundage in car interiors rose to 210 million pounds. Wool, which in 1950 amounted to 33 million pounds, dropped to 1 million pounds in 1955. In fact, excluding that used in padding, wool went from 38 percent to a scant 1 percent of the materials used.

Some wool will continue to be used, but primarily in blends for upholstering higher priced cars.

Nylon, on the other hand, likely will enjoy substantial growth as an upholstery material. Its blends are being used more and more in low- and medium-priced cars. Nylon fibers are appearing in increased proportions in other already-used blends.

The amount of nylon used in automobile interiors has almost doubled in the last five years.

Along with nylon, vinyl has also become popular as interior trimming. Auto manufacturers used over 45 million pounds of vinyl for trim in 1955. Excluding padding material, vinyl ranks second only to cotton.

Its favorable price makes vinyl especially suitable as

a seat covering in lowest priced models and in some specialty models. However, its lack of porosity will probably cause it to lose ground to other synthetics in the low- and medium-priced field.

Because of this, vinyl probably will suffer an immediate reduction in use as an upholstery material. This will be followed by a leveling off period, with vinyl then holding a fairly stable position.

For sidewalls, vinyl is expected to increase in use, and perforated cotton-backed vinyl should become more widely used in headlining. Its future possibilities as a ceiling material, however, will depend on the success or failure of preformed, snap-in units.

Stylists in the automotive industry are always interested in creating new style trends as a sales stimulant. The desire to create eye-catching interiors through the use of fabric selection can be seen in the number of materials and various combinations of fibers being used. There is a much wider selection now than there was 5 years ago.

For the future, automotive engineers see the continued use of colorful interior trim fabrics. Light shades will be used much less, with colors tending to be brighter and more intense.

Almost all of the fabrics will have unusual styling. Large nongeometric patterns, modern or abstract, will predominate.

The smart interiors of today's passenger cars have their beginning in the cutting room. Here layers of cloth are cut for use as trim.



COOLING PEARS IN FIBERBOARD CARTONS

By G. F. Sainsbury and H. A. Schomer

As much as 125 hours can be saved in cooling Anjou pears packed in fiberboard cartons if ample air space is provided between the rows of boxes in the warehouse.

In tests made by Agricultural Marketing Service, researchers found that stacking arrangements made a big difference in how quickly the pears cool. In one plant using a tight stacking pattern, 200 hours were required to remove 75 percent of the field heat from the fruit. In other arrangements which allowed more air circulation, cooling took only 75 hours.

The study, which included stacking patterns for pears in both wooden and fiberboard containers, was made in cooperation with the Oregon-Washington-California Pear Bureau Research Committee.

Researchers selected two types of fiberboard containers for the tests. One type was made with a single layer of double-faced corrugated fiberboard folded and stapled together at assembly. The other had an additional veneer liner for the sides and bottom.

Stacking arrangement showing regular spaces between the stacks, allowing side exposure. Cold air exhausts through floor slots.



They compared the test fiberboard cartons with the conventional wooden boxes in studying fruit temperatures, cooling rates, and effects on quality.

Each of the four plants cooperating in this study used a different stacking method. Warehousing procedures and customs of the storage plants were the guides in determining these methods.

In judging effects on fruit quality, experts carefully examined the pears at the time of packing by looking at finish and appearance. They determined firmness with a Magness-Taylor pressure tester. They used a refractometer to measure soluble solids.

All the plants stored the pears under normal conditions for customary periods of about 7 months, maintaining temperature at 31° F., with 84 percent humidity. Both the temperature of the fruit and the air surrounding the cartons were continuously recorded. At the end of the storage period, researchers judged the condition of the pears on the basis of weight loss,

Boxes in this arrangement are piled 13 high in chimney stacks. Sketch at upper right shows how box arrangement forms chimney.





Arrangement showing wide spaces between sides of cartons. Wooden boxes were placed in rows with fiberboard containers.

shriveling, bruising, firmness, total solids, and degree of ripeness.

In each of the stacking methods studied, they included both fiberboard and wooden boxes for purposes of comparison.

In a Medford, Ore., plant, they stacked the boxes with regular spaces between stacks, allowing side exposure. The arrangement permitted cold air to flow down through the stacks and exhaust through the floor slots beneath the stacks.

Using this stacking method, results showed that it required 75 to 82 hours of cooling time to remove 75 percent of the field heat from pears in the fiberboard cartons. Pears in wooden boxes required 50 hours.

At a Hood River, Ore., plant, the researchers allowed wider spaces between the sides of the cartons. In this instance, the fiberboard cartons required 82 hours of cooling time to remove 75 percent of the field heat. Wooden boxes took only 51 hours.

A Yakima, Wash., plant employed a chimney arrangement for stacking the cartons. Comparable cooling rates on fiberboard and wooden boxes showed that the fiberboard boxes required 75 hours, while the wooden boxes required 50 hours.

At a Wenatchee, Wash., plant they stacked the boxes in tight double rows. Here the difference in fiberboard and wooden boxes was even more significant. Using this stacking method, the fiberboard cartons required 200 hours, as compared with only 68 hours for the wooden boxes.

Comparisons of the fiberboard cartons with and without the veneer liners showed no significant differences in cooling efficiency.

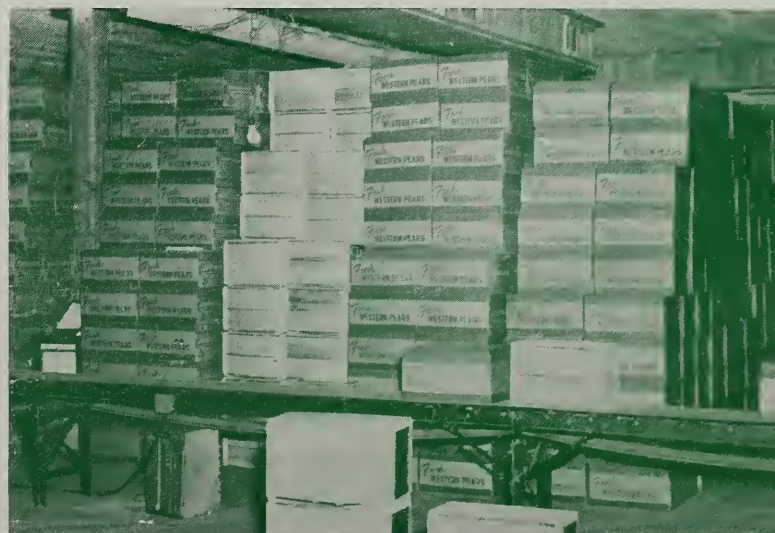
One of the significant conclusions drawn from this study is that stacking arrangement may have a more adverse effect on the cooling of fruit in cartons than on the cooling of similarly stacked wooden boxes.

This is true because of the characteristic shape of the containers. The straight surfaces of the fiberboard carton allow absolutely tight stacking. The packed wooden box, stacked on its side, presents a bulged top and bottom to the adjoining stack.

Other important conclusions drawn from this study include these points:

- The pears were always cooler in the wooden boxes.
- In one test the fruit cooled in the wooden boxes in about a third of the time required for fiberboard boxes.
- Pears in the fiberboard cartons were judged slightly riper than those in the wooden boxes at the end of the storage period.
- Fruit stacked in slow-cooling arrangements showed advanced color and ripeness, but poorer overall quality.
- There were no marked differences in weight losses between the fruit stored in the fiberboard and wooden boxes.

Tight stacking of double rows, with double row of wooden boxes in center for comparison. Note temperature recorder near post.



Trends in Marketing Oranges

By Robert E. Frye



THOSE who believe that the market for agricultural products is a dynamic business can well point to oranges as a case in point.

Take Florida oranges as a specific example. During the past 10 years, we have had an almost complete reversal of the form in which Florida oranges reach the consumer. During the 1945-46 season, about 60 percent of the Florida orange crop was marketed as fresh fruit. Processed orange products—mainly single-strength juice, blended juice, and hot-pack concentrate—made up the other 40 percent.

Ten years later, during the 1955-56 season, the proportion of the crop marketed in the fresh form was less than 30 percent of the total volume of production. Yet, the total Florida orange production was about 83 percent larger than 10 years ago.

In the California-Arizona production area, the change has not been so great. In this area, several factors are important in maintaining the fresh outlet. First of all, new residential and commercial construction has taken some orange acreage out of production, thus reducing the supply of California-Arizona oranges. This has reduced the need for developing outlets for processed orange products.

Secondly, navel oranges comprise a sizable proportion of the oranges produced in this area. The navel is a variety that lends itself to fresh marketing because it is particularly suited to eating out of hand. And, finally, the California-Arizona valencia orange is largely harvested in the May-to-November period, when Florida oranges are in shortest supply.

Frozen concentrated orange juice is the big factor in this story. It was first produced commercially in Florida in the 1945-46 season; in California, 3 years later. It was the result of research conducted by the Florida Citrus Commission in cooperation with USDA.

During that first season in Florida, frozen orange concentrate production totaled one quarter-million

gallons—less than 1 percent of the Florida crop. This past season, the Florida pack of frozen concentrated orange juice was approximately 70 million gallons, or more than 50 percent of the crop.

In the California-Arizona region, production of frozen concentrated juice reached its peak in the 1952-53 season—4.7 million gallons. AMS estimates indicate that the 1955-56 pack was well below that volume.

As more consumers bought the frozen product, per capita consumption of the fresh fruit declined. The same period witnessed a leveling off—and, in some cases, decreases—in the volume of old-line products produced and marketed. But the important fact remains that consumer acceptance of the new product has made it possible for the orange industry to market a materially larger volume of oranges than 10 years ago.

Periodical reports issued by the Market Development Branch of AMS point up some interesting trends in consumer purchases of oranges and orange products.

In January 1948, only 4 percent of the nation's families bought concentrated orange juice. By July 1955, almost 32 percent of the nation's families bought the product. Since July 1955, the proportion of families buying the product each month has tended to be lower, ranging from 28 to 30 percent.

During the 1955-56 season there appeared to be a considerable movement of families in and out of the market for the concentrate in response to changes in retail prices. Those families continuing to buy the product regularly purchased about the same average quantity as they did under previous prices.

This slack in demand for the frozen product should not be taken to mean that the household market has reached its full potential. It does point to the need for closer examination of this market for oranges if production of oranges continues to increase.

Expansion of the market for frozen concentrate is not a dream. As the population continues to grow and

consumer income moves upwards, the market for the product should expand. The most important potential for expansion, however, appears to be in the areas where purchases are now relatively low.

Northeastern consumers have always led the field in purchases of frozen orange juice. Supplies of this product are more readily available there than in other areas and, on the average, the level of consumer income is higher. Per capita purchases in the Northeast during the 1955-56 season were about 50 percent greater than in the North Central region, and almost twice as large as in the South.

If consumption in the other regions could be brought in line with the Northeast, an estimated 50-percent increase in volume purchased could be realized.

Prospects are for continuing change in the market for the orange industry. Other relatively new products—although still small in volume as compared with the frozen product—are having their effect.

During this past season, for example, the chilled orange juice pack in Florida is estimated to have been about 19 million gallons, which utilized about 3.5 million boxes of fresh oranges. For some years, the California-Arizona area has reported a pack of this product ranging from about 1 to 4 million gallons annually.

Chilled orange juice is distributed directly to the home by dairies, and also through drink stands and retail food stores. Distributors of this product also sell a sizable volume of reconstituted frozen concentrated orange juice in consumer-size containers.

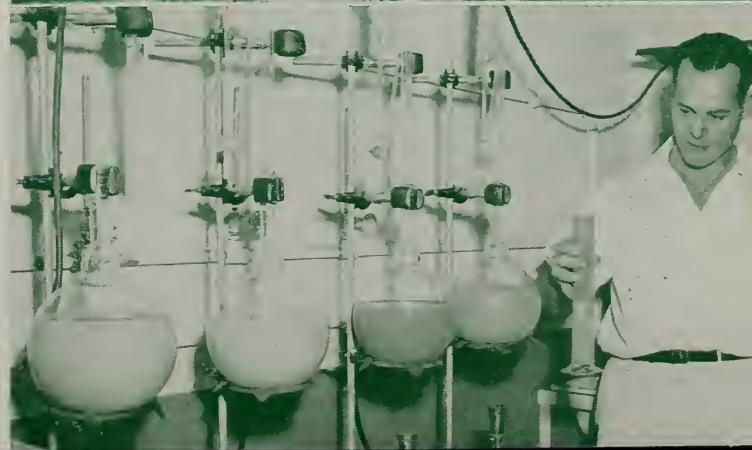
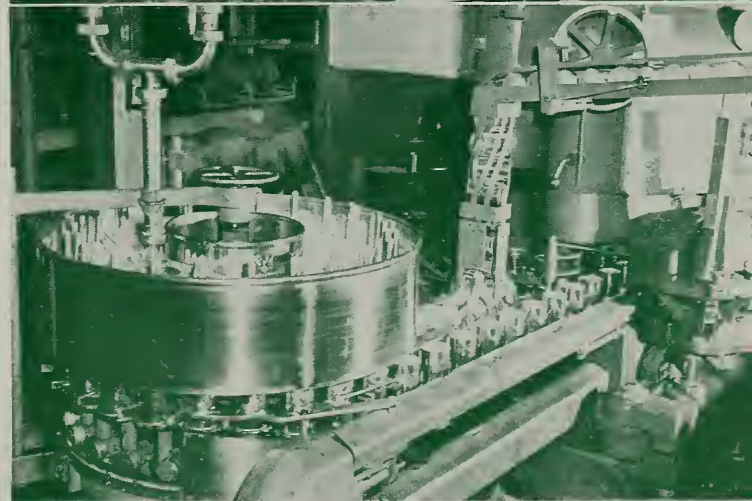
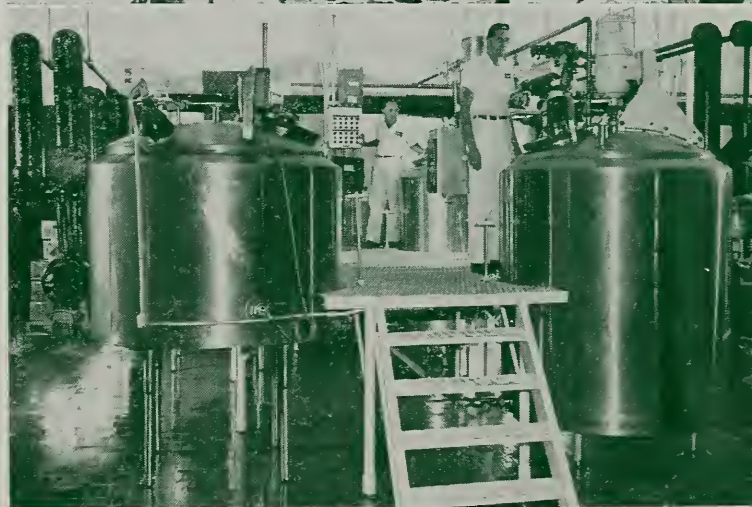
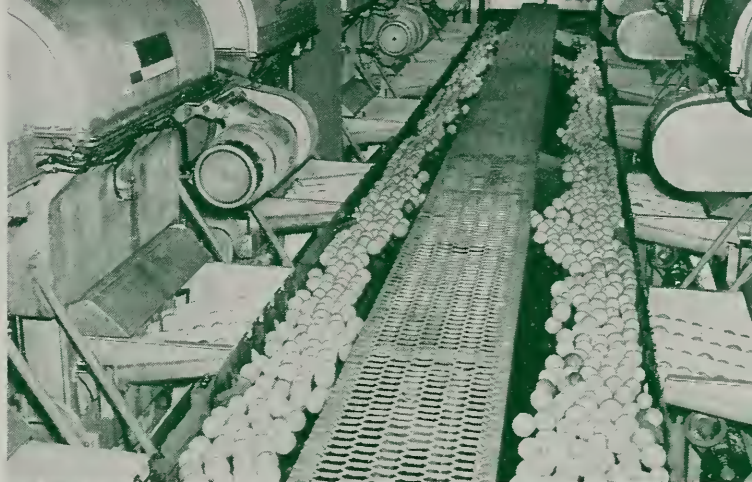
Most of the other new developments in orange products also capitalize on the convenience factor, as well as the advantages of fresh flavor. These products include chilled orange sections and blended juices.

Orange crystals, a dehydrated product, are now being commercially produced. As yet, they are not generally available in retail stores. The crystals hold considerable promise of further expanding the orange market where refrigeration facilities are not available and where a dry product is desired for further processing.

The market for fresh and existing processed orange products must not only be maintained, but expanded through quality improvement and aggressive marketing if more oranges are to be sold with satisfactory returns to growers, handlers, and processors.

Photos, from top to bottom:

(1) Oranges move into extractor machines. (2) Juice is blended and chilled in cold wall tanks; freezing begins in rotator at right. (3) Modern equipment fills and caps cans of citrus juice. (4) Technician checks for quality as well as purity of product.



Household Food Consumption Patterns

By Janet Murray and Faith Clark



CITY families in the upper income bracket serve as a barometer for market analysts. What they buy today is a pretty good indication of what others will be buying tomorrow.

This country has had a long-run rise in spendable income per capita. Always the spending habits of an earlier period's higher-income group have become the current habits of the mass market.

That's why analysts promptly note any change in the food consumption pattern of this group.

Providing new data for studying income-consumption relationships is the 1955 Household Food Consumption Survey. Compiled by Agricultural Research and Agricultural Marketing Services, the survey makes possible comparisons of low- and high-income families.

It also presents the latest information on food consumption and expenditures for city and rural non-farm and farm families. This information, as well as data on population shifts from farms to cities and suburbs, gives further clues to future market changes.

Families with incomes of \$6,000 to \$8,000 after taxes are considered high-income families. In the middle-income group are those netting \$4,000 to \$5,000. Low-income families fall into the \$2,000-\$3,000 bracket.

Among city families, the high-income group consumed in 1955 an average of 16 pounds of meat, poultry, and fish per family in a week. In contrast, low-income families ate only 13 pounds.

For fruits and vegetables, consumption differences among income groups were also substantial. The low-income group used 16 pounds of fresh fruits and vegetables and 8 pounds of processed fruits and vegetables. This was considerably less than the 20 pounds of fresh and 11 pounds of processed fruits and vegetables consumed by the high-income group.

Actually, high-income families used as much as or more of all foods except flour, cereals, and pastes, such as macaroni and spaghetti. Part of the decrease in the use of cereal as income increases is a genuine shift in consumption patterns. Part results from the heavy representation in the low-income group of Southern families who use more flour and meal in home baking.

This regional difference in eating habits is one of the reasons why the survey breaks down its information into four sections of the country — Northeast, North Central, South, and West. Looking at each region separately makes possible a more precise study of income-consumption relationships.

Reports of this survey list over 200 food items, as well as combinations in various kinds of groupings. From the tables in these reports, it is possible to determine the relationship between consumption and income for each item and for each group of foods.

Take the processed fruits and vegetable group as an example. It includes some items with great income variability and some with little or none. The survey tables show where these differences lie and how they make up the total consumption picture for processed items.

One can see at a glance that high-income families use over three times as much frozen fruits and vegetables and almost twice as much fruit and vegetable juices as the \$2,000-\$3,000 income group. The tables

also indicate that consumption of canned fruits and vegetables was less affected by income and that high-income families use less dried fruits and vegetables than the lower groups.

But market potentials need to be judged, too, in terms of how the different foods lay claim to the consumer's food dollar. Meat, eggs, and milk and milk products vary moderately as incomes increase. They are what is known as less "income elastic" than either frozen fruits and vegetables or fruit and vegetable juices.

Yet the meat, egg, and milk groups take about half of the consumer's food dollar. So, even though the proportionate increases in consumption are relatively moderate for these foods, an expenditure of considerably more money for them results with the shift from low to high income. Low-income families spend about \$10 a week for meat, eggs, and milk, while those with high incomes spend about \$15.

Although income plays a substantial role in changing marketing habits, other influences are also operating. One of these is the movement of families from farms to cities and suburbs.

We don't know how long it takes people to adjust from farm to city food habits. But investigations such as the 1955 Food Consumption Survey have repeatedly shown a distinction between "farm" and "urban" food patterns. So, over the long run, food consumption is likely to change as the population of this country becomes more urbanized.

Broadly speaking, farm families consume more food than city families, but they purchase less on the market because of food supplied by their own farms. Comparison of the 1955 survey data with earlier surveys shows that farm-furnished food, though still substantial, is becoming a smaller share of the total. Market analysts see in this another indication of a changing marketing pattern.

But analysts must also distinguish between farm-city differences and regional differences in food habits. Here again the regional tables come into use, particularly for the North Central and Southern States. The charts made from these tables have been put on a middle-income basis (because of the difficulty of comparing farm and city money incomes) to give a description of farm and city food habits.

Both groups consumed about the same amount of meats (including poultry and fish) during the week surveyed in 1955. In both regions, but especially in the North Central, much of this meat came from the home farm. Home production also supplied a large share of the milk consumed on farms. In fact, that's

probably why milk consumption proved to be so high among farm families.

Farm families used larger amounts of fresh vegetables—without counting potatoes, an important item in farm diets. Processed vegetables, on the other hand, appear in larger quantities on city, rather than farm, tables.

City preferences for processed products show up in their choice of larger quantities of bakery products and smaller quantities of such foods as flour and cereals. Farm families used over twice as much flour and cereals as city families in the North Central region and nearly three times as much in the South. Southern farms supplied some of their own flour and cereals—chiefly, meal ground from home-grown corn.

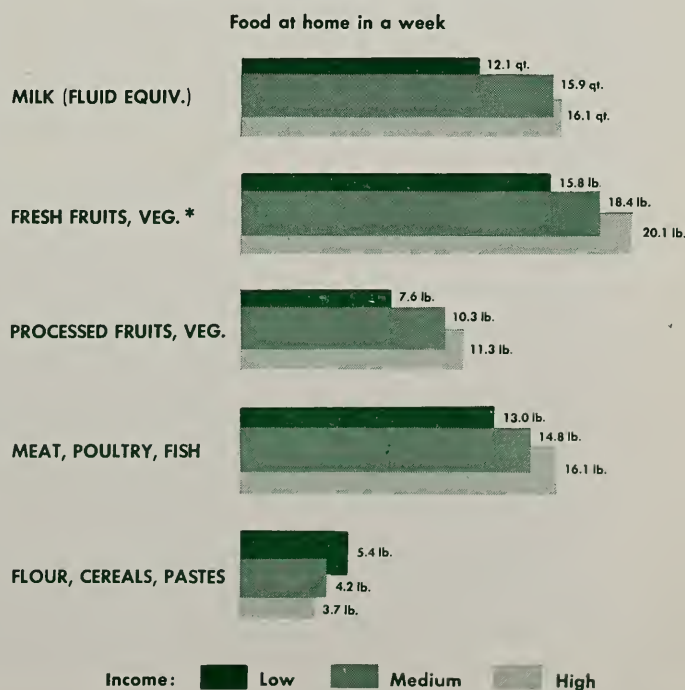
Farm families in general give grain products a much more important place in their diets than city people. With the gradual shift in population from farm to city, grain consumption is one of the reasons for the long-run downward trend in consumption of grain products.

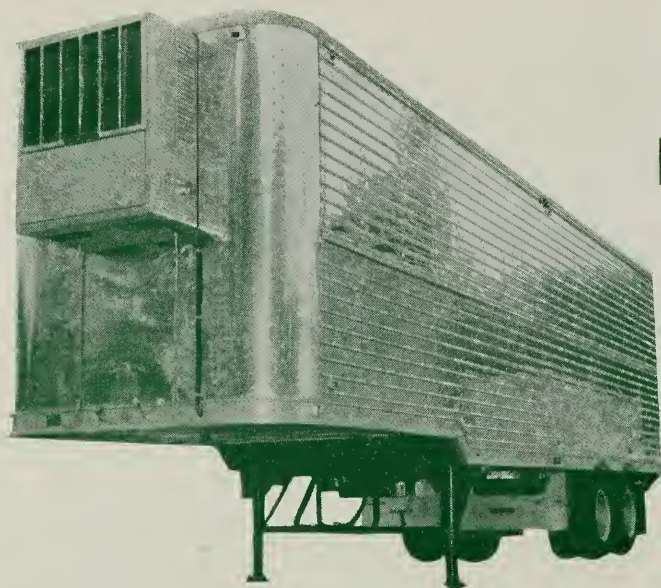
The full story of the USDA food consumption survey can be found in a series of reports coming out this year entitled "Food Consumption of Households in the United States." They may be obtained from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

(Janet Murray and Faith Clark are home economists in the Agricultural Research Service.)

INCOME AND FOOD CONSUMPTION

Per City Family, Spring 1955





REFRIGERATED VANS

FOR FROZEN FOODS

By Harold D. Johnson

IN A FEW short years, frozen food has become big business—and it's getting bigger. From a 17-pound per capita domestic consumption in 1949, it advanced to 45 pounds per capita by 1955. Americans consumed some 7 billion pounds of frozen food last year.

Frozen food transportation is big business, too. Truck-trailers and mechanically refrigerated cars represent an overall investment of some \$350,000,000. When you add to this the investment in trucks and in ice bunker cars, this figure can be increased to almost \$800,000,000.

Nor is the end in sight. The American housewife is turning more and more to frozen food products of an ever-increasing variety. Not only that, she recognizes and insists on good quality in her frozen foods.

Whether she gets these products in top condition depends primarily upon the transportation facilities that bring them to the neighborhood market. The vehicles that transport frozen foods must have the ability to produce and maintain required temperatures throughout the trip.

Not only must these temperatures be below a certain maximum (usually considered to be 0° F.), but fluctuations must be avoided. Varying temperatures can be detrimental to the appearance and nutritive quality of certain foods.

How cold air circulation affects temperature was the subject of a recent AMS research study. Specialists in the Transportation and Facilities Branch made tests in July, 1956, to determine how much space was necessary to provide adequate circulation around a load of frozen pies and precooked meals.

Researchers selected 4 modern 35-foot trailers, equipped with identical mechanical refrigeration units rated at 5-ton cooling capacity. Each trailer had strips

on the interior nose, walls, and doors to facilitate air circulation. All four of the van bodies had similar construction and insulation features.

The dinners and pies were loaded at -12° F. with various combinations of space allowances assigned to each van. Some vans used floor racks; some did not.

The trailers moved together over a 1,200-mile trip with an average outside temperature of 71° F. Thermostats on the refrigeration units were set at 0° F. But none of the vans held that temperature—except in the top front position within the trailers, a spot directly in line with the cooling units.

Before tests began, AMS researchers used a heater and fan to bring temperatures in all refrigerated van bodies to same level.



Researchers noted temperature variations between the tops and bottoms of all the vans, but a wider variation in those without floor racks. Comparative temperature statistics, however, revealed no definable relationship between available space for cold air circulation and commodity temperatures.

It was, nevertheless, apparent that the van bodies and refrigerating units were not suitably matched to provide a satisfactory transport unit for moving cargo at the desired temperature.

To focus attention on the necessity for standard ratings for trailers and refrigerating units, AMS conducted a second survey at Edgewater Park, Miss., to determine performance differences in the various makes of vans. This test was conducted in cooperation



Inside panel truck, AMS researcher takes temperature readings.

with the National Bureau of Standards and the American Trucking Associations, Inc.

Seven new, insulated and refrigerated semitrailers of 35-foot length were offered by their manufacturers for testing. Although not all the trailers met the same specifications, all were designed to give comparable service to the buyer. The test was conducted in an open lot with the trailers exposed to the weather.

Briefly, the test showed these differences:

- * **HEAT TRANSMISSION:** 43 percent variation from 75 to 107 B.T.U./hr. (Degree F. difference between inside and outside temperatures)



This panel truck was used by researchers to record temperature fluctuations in the refrigerated vans participating in the test.

- * **SOLAR HEAT GAIN:** 345 percent variation—from 230 to 1020 B.T.U./hr.
- * **WARMUP TIME,** 0° F. to 70° F.: 55 percent variation—from 14.7 hrs. to 9.6 hrs.
- * **PULLDOWN TIME,** 91° F. to 0° F.: 460 percent variation—from 2.7 hrs. to 15.1 hrs.
- * **REFRIGERATING UNIT CAPACITY:** 150 percent variation—from 6,400 to 15,900 B.T.U./hr.

Assuming the refrigerating units used in the 7-trailer test were competitively rated, the need for adequate specifications is obvious and imperative. Logically, the first step in matching a refrigerating unit to a trailer requires a determination of the pertinent thermal characteristics of the trailer. Only at this point can applicable requirements for unit performance be set out.

Such a program for testing refrigerated trailers in the laboratory and on the road has been presented to industry organizations by USDA and the Bureau of Standards. It involves the formulation of a standard method and the development of apparatus for determining heat gain and air infiltration of refrigerated trailers.

Prompt, coordinated industry and government action in studying the problem can result in better-matched trailers and refrigerating units, rated under standard conditions. The expanding truck industry vitally needs such information to deliver frozen foods to the consumer in top-notch condition.

MARKETING and REGULATORY PROGRAMS

License fees under the Perishable Agricultural Commodities Act were increased February 1, because of substantial increases in administrative costs during the past six years. Higher fees will permit the employment of more enforcement personnel to handle the more restrictive provisions of the Act as amended by Public Law 842, 84th Congress.

Revised regulations, designed to implement tightened legislative provisions, will be issued soon. Principal revisions will deal with misrepresenting and misbranding of produce in interstate commerce; the inspection, on request by USDA, of produce owned or controlled by licensees; and the licensing of applicants previously adjudicated bankrupt, those who have been convicted of felonies, and those whose previous licenses have been suspended or revoked as a result of violations of the Act.

Three hundred livestock auctions have been posted under the Packers and Stockyards Act. About 500 more are considered big enough to qualify for posting. Currently, auctions are being posted in Texas, Colorado, Louisiana, Arkansas, Missouri, and other States.

Two tobacco standards were revised recently. They are Tentative Standard Grades for Connecticut Valley Shade-Grown Tobacco (U. S. Type 61) and Tentative Standard Grades for Georgia and Florida Shade-Grown Tobacco (U. S. Type 62). Both were first issued in 1933.

Official standards for grades of lamb and mutton carcasses were amended, effective February 11. The five grades for lamb—Prime, Choice, Good, Utility, and Cull—have been retained, but changes were made in the standards for the first three grades.

Standards for fresh tomatoes were revised, effective December 15. These supersede standards established September 14, 1953.

Revised "Regulations Governing the Inspection and Certification of Fresh Fruits, Vegetables and Other Products" (SRA-93) became effective January 4. The "Other Products" include raw nuts, Christmas trees and greens, flowers and flower bulbs, and onion sets.

"Rules and Regulations of the Department of Agriculture Governing the Grading and Certification of Meats, Prepared Meats, and Meat Products" (SRA-98) has also been revised.

"Industrial Molasses—An Annual Market Review—1956," AMS-79, which rounds up the year's market news on this product, is now available. Scheduled for issue in March is the 1956 "Annual Report on Tobacco Statistics," Statistical Bulletin 200. This publication consolidates all the most frequently used statistics on tobacco. "Cotton Quality Statistics—United States—1955-56," Statistical Bulletin 202, which provides final information on the 1955-56 crop, is off the press.

What the current plentiful supplies of eggs mean to you depends on which hat you're wearing—the one for marketing or the one for consuming. Plentiful egg supplies are good news to consumers, but for marketing men, they can mean a headache.

To aid in marketing eggs while supplies are large,



AMS is supporting the poultry industry's efforts to increase the demand for eggs through merchandising and promotional activities. USDA is conducting a Special Plentiful Foods Program on eggs during March.

The Department has asked the help of the food distributive industry in placing special merchandising emphasis on eggs this month. Newspapers, radio, television, and other media have been enlisted to inform consumers of the abundant supplies now available.



CONSUMERS' USE OF AND OPINIONS ABOUT POULTRY

By Margaret Weidenhamer

There may not have been a chicken in every pot last year, but there certainly were a lot of broilers and fryers put on the family dinner tables around the country.

A survey, conducted by the Market Development Branch of Agricultural Marketing Service in June and July 1956, shows the extent of this popularity. Over 90 percent of the 3,100 homemakers interviewed had served broiler-fryers sometime in the past 12 months. About half the users served them once or more each week.

The poultry study reporting these facts is one of a series providing information on consumers' attitudes toward and uses of various farm products. A preliminary report on this survey was published in January 1957. A more detailed, final report is being prepared and will be published later.

The preliminary report shows that fried chicken was the most popular. Almost all users of broilers and fryers had served them this way during the period covered by the survey. About 1 in 3 homemakers had not served them any other way.

As for the rest, about 40 percent had baked or roasted the broilers and fryers, about 25 percent broiled them, and 17 percent barbecued them.

These broilers and fryers usually were bought in supermarkets. At least 60 percent of the homemakers said that's where they got their birds. Eighteen percent patronized small grocery stores. The rest either went to a poultry store, butcher shop, or directly to the farmers. Some, of course, raised their own or were given broiler-fryers.

Most purchasers selected the entire broiler or fryer. Many took it as a whole bird; others either chose one which was already cut up or had a butcher cut one up for them.

In choosing a bird, most purchasers looked for one without bruises or discolorations. Plumpness, lack of pinfeathers, and the amount of fat covering were also important considerations to many purchasers.

Four-fifths of those who bought ready-to-cook broiler-fryers thought the chickens were cleaned as well as they should be. One in 5 was not always satisfied, but two-thirds of this group said it wasn't much bother to finish cleaning the bird themselves.

Once they had bought the bird, most homemakers had very definite ideas about how long it could be kept unfrozen. These varied, however. Thirty-six percent thought 2 days would be safe. Nineteen percent said 1 day, while 5 percent felt that broiler-fryers should be used the same day they are purchased.

But 22 percent thought 3 days would be all right, and 12 percent felt that 4 days or more could be considered safe. Only 6 percent said they didn't know how long they could safely keep a chicken.

Interviewers also asked the homemakers whether or not they had bought stewing and roasting chickens during the previous year. About half had purchased stewing chickens; slightly less than half had bought roasting chickens.

Only 1 in 10 had purchased duck.

About two-thirds of those interviewed had served turkey in the preceding 12-month period. Still considered by many as a holiday item, turkey appeared rather infrequently in most households. About 3 turkey users in 4 served it only 1 to 3 times a year.

Also included in the survey were frozen poultry pies and frozen poultry dinners. About 50 percent said they had served these during the survey period. Frozen pies, especially chicken, were used by more homemakers than either frozen chicken or turkey dinners.



OFFICIAL BUSINESS

UNIVERSAL COTTON STANDARDS AGREEMENT

World trade has always been important to American agriculture, but added emphasis on market development in recent months has created new interest in expanding the foreign market for U. S. farm products.

One of the important problems involved in the development of trade relations with other nations is the matter of universally accepted standards and grades for the various products involved.

At least one U. S. farm commodity has the advantage of universally accepted standards. For more than 30 years, U. S. upland cotton grade standards have been accepted throughout the world. This general acceptance of the cotton grade standards has been facilitated by agreements that are worldwide in scope.

So far as we know, these arrangements are unique for an agricultural commodity. The agreements have operated with considerable success and are generally considered helpful in selling U. S. cotton.

The United States Cotton Standards Act of 1923 authorizes the Secretary of Agriculture to enter into agreements with cotton associations, exchanges, and other cotton organizations in foreign countries for the adoption, use, and observance of universal standards of cotton classification.

The Act also provides for arbitration or settlement of disputes, and the preparation, distribution, inspection, and protection of the practical forms or copies of the standards under such agreements.

Agreements between USDA and 13 cotton associations in 9 of the leading cotton importing and consuming countries of the world were in effect in 1956. The first agreements with European importing countries were completed in 1923. Agreements with 3 Japanese associations followed in 1939 and with the East India Cotton Association in 1953.

Under terms of the agreements, the cooperating associations agree to use the grade standards and to

hold regular conferences to maintain or revise the standards every three years. The last such conference was held in May 1956 with more than 100 delegates attending. Represented were foreign cooperating associations, along with cotton producers, spinners, and merchant organizations in the United States.

The terms of the agreements also provide for a formal voting procedure, which is rarely used. When it is, each participating association has 1 vote, and the USDA has the same number of votes as all of the 13 signatory associations combined. Three-fourths of the votes cast are required for decision.

USDA, in effect, represents all interests in this country when it comes to voting on standards. But before taking a position, all domestic interests are consulted and their views are taken into account by the Department of Agriculture.

Maintenance and revision of universal grade standards for U. S. cotton has been one of the principal activities under the agreements. Effective in 1953, a major revision of these standards reflected changes in the quality of cotton resulting from new harvesting, ginning, and handling methods.

Standards agreements on cotton relate only to grade. As far as U. S. cotton is concerned, these standards constitute the basic language of grade throughout the world. Official standards for staple length of U. S. cotton have not been formally adopted under the universal agreements, but these standards are also used wherever American cotton is bought and sold.

In addition, a good many countries producing American-type cotton use the official U. S. standards as a basis for classing their growths. This is particularly true of cotton-growing countries in the Western Hemisphere.

—Rodney Whitaker, Deputy Director.
Cotton Division, AMS